

Affirmed and Opinion Filed August 24, 2022



**In The
Court of Appeals
Fifth District of Texas at Dallas**

No. 05-21-00534-CR

**LAXAVIER LAMAR WHITTLEY, Appellant
V.
THE STATE OF TEXAS, Appellee**

**On Appeal from the 417th Judicial District Court
Collin County, Texas
Trial Court Cause No. 417-81486-2020**

MEMORANDUM OPINION

Before Justices Partida-Kipness, Pedersen, III, and Nowell
Opinion by Justice Partida-Kipness

Appellant Laxavier Lamar Whittley appeals his conviction for aggravated sexual assault. In two issues, Whittley challenges the sufficiency of the evidence to support the jury's guilty verdict and the admission of expert testimony from forensic DNA analyst Cassandra Canela. We overrule Whittley's issues and affirm the judgment.

BACKGROUND

Around 5:30 a.m. on July 8, 2019, sixty-one-year-old P.B.¹ awoke when she felt something brush against her leg in bed. Her husband had already left for the day, and her two adult daughters were sleeping in their rooms. P.B. sat up and saw the silhouette of a man with a gun at the foot of the bed. P.B. described him as “just a total black silhouette.” She told the jury he was wearing “all black” and what looked like a black jacket.

P.B. “was scared” when she saw the attacker had a gun and begged him not to hurt her. The attacker told her to “hush, be quiet” and instructed her to lie face down “crossways on the bed.” She did so and, “within a matter of seconds,” P.B. “felt a sharp, rough object stuck into” her vagina that seemed “like a glove or something.” P.B. told the jury the attacker then stuck “rough objects into [her] rear-end.” P.B. assumed the objects were the gun, his gloved hand, and his penis. P.B. recalled this “was horribly painful,” and she “was just begging him to stop hurting [her].” She avoided looking at the attacker because she thought that was her “best chance of survival.” P.B. tried to defend herself by grabbing a lamp and swinging it at him, but the lamp was “so cumbersome” the attack did not work. At some point, the attacker asked whether she had any cash in the house. P.B. told him she did not keep cash, but he could take her purse, which was downstairs.

¹ We refer to the complainant, P.B., by initials to protect her identity. *See* TEX. R. APP. P. 9.8(a).

As the assault continued, the attacker “came up beside [her] and demanded oral sex.” P.B. complied. When her alarm went off around 6:30 a.m., P.B. told the attacker it was “getting light outside” and her “neighbors leave early for work.” P.B. told the jury she was “hoping he would realize, you know, I probably need to escape, it’s not dark anymore.” The attacker did not immediately leave. Instead, he got up, moved behind P.B., and began rubbing his penis on her back. P.B. felt wetness on her back and believed it to be semen.

P.B. testified that when the attacker finished, he told her to “stay there, lay down, and pull the covers over your head.” P.B. “laid there quietly” and “just listened.” She was worried the attacker would go after her daughters next. “After a few minutes [P.B.] realized that he probably had left” because she had not heard her daughters’ voices. At that point, P.B. ran to her younger daughter’s bedroom and asked her to call 911.

P.B. testified she could tell the attacker was African American from the color of his penis. In her written statement to police, P.M. said the attacker “sounded black” but did not say she was able to determine the color of his skin. P.B. was taken to the hospital and treated by Stephanie Barnes, a sexual assault nurse examiner. Barnes testified P.B. had bruising in her vaginal area and tears and bruising in her anal area so severe Barnes called the emergency room to see if P.B. required sutures. Barnes collected DNA swabs of the areas where the attacker had reportedly touched P.B.: orally, anally, vaginally, and on her back.

There is an alleyway behind P.B.'s home that leads to a nearby apartment complex. Police found a bandana stuffed inside a glove and a footprint on top of a trashcan in the alleyway. Police theorized the attacker had used the trashcan to climb over a wall between P.B.'s house and the apartment complex. Surveillance video from the home showed the attacker had short hair and was wearing black clothing and red, checkered Vans shoes.

A security officer at the adjacent apartments referred police to an "apartment of interest." Through interviews, authorities learned Jaevon Murphy lived in the apartment of interest and Whittley was living with Murphy and sleeping on his couch. Police took DNA swabs from both men along with two other suspects associated with the apartment. While searching the apartment, police found a single black glove in the bedroom closet and a handgun with red stains on the barrel hidden inside an ottoman near the couch where Whittley slept. Police also discovered Murphy owned a pair of red, checkered Vans shoes. However, Murphy had long dreadlocks, which did not match the surveillance images of the short-haired attacker. DNA testing shed further light on the attacker's identity. The DNA evidence linked Whittley to the offense and excluded the other suspects.

Whittley was sixteen years old at the time of the offense. The trial court certified and tried him as an adult. The jury found Whittley committed aggravated sexual assault and assessed punishment at fifty-five years. The trial court rendered judgment on the verdict. This appeal followed.

STANDARD OF REVIEW

In a sufficiency review, we view all the evidence in the light most favorable to the verdict to determine whether any rational factfinder could have found the crime's essential elements beyond a reasonable doubt. *Jackson v. Virginia*, 443 U.S. 307, 319 (1979); *Queeman v. State*, 520 S.W.3d 616, 622 (Tex. Crim. App. 2017). We may not reevaluate the evidence's weight and credibility or substitute our judgment for the factfinder's. *Queeman*, 520 S.W.3d at 622. Instead, we determine whether the necessary inferences are reasonable based on the cumulative force of the evidence when viewed in the light most favorable to the verdict. *Murray v. State*, 457 S.W.3d 446, 448 (Tex. Crim. App. 2015). We presume the factfinder resolved any conflicting inferences in favor of the verdict, and we defer to that resolution. *Id.* at 448–49.

A trial judge's ruling on the admissibility of expert testimony is reviewed for an abuse of discretion and will not be disturbed if it is within the zone of reasonable disagreement. *Wolfe v. State*, 509 S.W.3d 325, 335 (Tex. Crim. App. 2017). In sorting untested or invalid theories from those grounded in “good” science, trial judges are called upon to serve as gatekeepers. *Id.* at 336. The trial court's essential gatekeeping role is to ensure evidence lacking a basis in sound scientific methods is not admitted. *Id.* “The court in discharging its duty as gatekeeper must determine how the reliability of particular testimony is to be assessed.” *Vela v. State*, 209

S.W.3d 128, 134 (Tex. Crim. App. 2006). “The reliability inquiry is, thus, a flexible one.” *Id.*

ANALYSIS

Whittley brings two issues on appeal. First, he maintains the evidence was legally insufficient to support the conviction. Second, he asserts the trial court erred by admitting the expert testimony of a forensic DNA analyst. We will address each issue in turn.

I. Sufficiency of the Evidence

At trial, Whittley did not dispute whether a sexual assault occurred, only whether he was the one who committed the crime. He takes the same approach in his first issue on appeal. Whittley notes P.B. was unable to identify the man who assaulted her. He maintains the other evidence connecting him to the crime amounted to no more than speculation and fell short of the standard required to sustain a conviction. We disagree. The State’s DNA evidence, when paired with other circumstantial evidence of guilt, was sufficient to prove Whittley’s identity as the attacker.

The State is required to prove beyond a reasonable doubt the accused is the person who committed the crime charged. *Johnson v. State*, 673 S.W.2d 190, 196 (Tex. Crim. App. 1984). Identity may be proved by either direct or circumstantial evidence coupled with all reasonable inferences from the evidence. *Gardner v. State*, 306 S.W.3d 274, 285 (Tex. Crim. App. 2009). “Eyewitness identification is not

required, and DNA evidence alone may establish an attacker's identity in a rape prosecution." *Molina v. State*, 587 S.W.3d 100, 109 (Tex. App.—Houston [1st Dist.] 2019), *aff'd*, 632 S.W.3d 539 (Tex. Crim. App. 2021); *accord Coria-Gonzalez v. State*, No. 03-18-00645-CR, 2020 WL 465856, at *4 (Tex. App.—Austin Jan. 29, 2020, no pet.) (mem. op., not designated for publication) (collecting cases); *Allen v. State*, Nos. 05-11-00056-CR, 05-11-00057-CR, 2012 WL 2106530, at *2 (Tex. App.—Dallas June 12, 2012, pet. ref'd) (not designated for publication).

Multiple DNA samples were taken from P.B.'s person and from objects associated with the offense. At the hospital, Barnes collected swabs from the places P.B. reported the attacker had touched her: her mouth, genitals, anus, and back. Presumptive testing showed blood was present on the barrel of the handgun found hidden in the apartment where Whittley was staying, so lab technicians took swabs of the weapon's grip, trigger, and release. They also swabbed the glove and bandana found in the alleyway where police believed the attacker fled the scene.

Testing showed male DNA was present on P.B.'s anal, vaginal, and back swabs, though the oral swab was inconclusive. Y-STR DNA testing of the back swabs found two distinct DNA profiles matching P.B. and Whittley. According to the State's DNA expert, Cassandra Canales, tests showed it was 196 septillion times more likely the DNA came from P.B. and Whittley than from P.B. and one unrelated, unknown individual. Whittley could not be excluded as the contributor of the male

DNA on the vaginal and anal swabs, though all the other suspects were excluded as contributors there.

Testing of the swabs from the handgun's grip, trigger, and release revealed three DNA profiles, with P.B. as the most likely contributor of 93% of the DNA present. Canales testified it was 3.74 decillion times more likely the DNA on the handgun came from P.B., Whittley, and an unknown individual than from P.B. and two unknown, unrelated individuals. Those test results were inconclusive as to Murphy but excluded the other suspects as possible contributors.

Testing of the blood DNA found on the barrel of the gun suggested it was 14.6 septillion times more likely the blood DNA came from P.B. than an unrelated, unknown individual. Testing of the glove showed four DNA profiles present inside. P.B. was found to be 415 quintillion times more likely to have contributed a majority of the glove DNA than unknown individuals, and the probability Whittley contributed 21% of the remaining DNA was 39.6 million times greater than the probability of it coming from unknown individuals. Together, the probability P.B. and Whittley were the sources of most of the DNA inside the glove was 237 nonillion times greater than the probability of obtaining this profile from unrelated, unknown individuals. The other suspects, including Murphy, were excluded as possible contributors to the DNA found in the glove.

The Texas Court of Criminal Appeals has described DNA forensics narrowing the odds of a random match to one in 19,900,000 (an eight-digit number) as

“impressive statistics” that “support[ed] the jury’s conclusion that appellant, as opposed to some unidentified ‘suspect’ also sharing the same DNA profile, sexually assaulted” the victim, when those statistics were paired with other circumstantial evidence indicating guilt. *Hinojosa v. State*, 4 S.W.3d 240, 245 (Tex. Crim. App. 1999); *see Guo v. State*, No. 05-19-01178-CR, 2022 WL 224815, at *5 (Tex. App.—Dallas Jan. 26, 2022, pet. ref’d) (mem. op., not designated for publication) (similar). We conclude the forensic data in this case, some of which placed the odds at one to a thirty-four-digit number, is also sufficient to support the verdict when paired with the other circumstantial evidence linking Whittley to the crime.

Other circumstantial evidence tied Whittley to the crime in a variety of ways. The apartment complex where Whittley lived was adjacent to P.B.’s house, and his regular presence in the vicinity would have provided an opportunity to commit the crime. *See Mason v. State*, 416 S.W.3d 720, 732 (Tex. App.—Houston [14th Dist.] 2013, pet. ref’d). Opportunity alone is generally not sufficient to prove identity, but it is nonetheless a “circumstance[] indicative of guilt,” and thus identity. *Temple v. State*, 390 S.W.3d 341, 360 (Tex. Crim. App. 2013); *Merritt v. State*, 368 S.W.3d 516, 526 (Tex. Crim. App. 2012). One black glove was found in the alleyway leading from the house to the apartments, and another black glove was found in the apartment where Whittley was staying. P.B. described her attacker as an African American wearing all black wielding a handgun. Whittley is African American, and the police found clothing of similar description and a handgun smeared with P.B.’s

blood stuffed inside an ottoman in the apartment in which Whittley was living at the time. The fact the complainant's blood was found on a weapon associated with the crime and hidden in the furniture near where Whittley slept speaks volumes as to identity. *See, e.g., Terry v. State*, No. 05-08-00165-CR, 2009 WL 1240132, at *2 (Tex. App.—Dallas May 7, 2009, pet. ref'd, untimely filed) (not designated for publication) (holding victim's blood found on defendant's articles to be persuasive evidence of identity). Finally, as a resident of Murphy's apartment, Whittley had access to Murphy's pair of distinctive, red-checkered Vans shoes, which were identical to the ones the attacker wore on the surveillance video. *See Castellon v. State*, 302 S.W.3d 568, 576 (Tex. App.—Amarillo 2009, no pet.) (mem. op.) (color of shoes used to prove identity); *cf. Segundo v. State*, 270 S.W.3d 79, 88 (Tex. Crim. App. 2008) (discussing “the mark of Zorro” mode of proving identity” in which a single “unusual fact” points strongly to the defendant).

“Proof of identity by circumstantial evidence is not subject to a more rigorous review than proof by direct evidence, since both are equally probative.” *Castellon*, 302 S.W.3d at 575; *accord Zavala v. State*, No. 05-02-01773-CR, 2004 WL 625626, at *2 (Tex. App.—Dallas Mar. 30, 2004, no pet.) (mem. op., not designated for publication). Here, the circumstantial evidence is sufficient to prove Whittley's identity as the man who attacked P.B. We overrule his first issue.

II. Admissibility of Expert Testimony

In his second issue, Whittley contests the admission of expert testimony concerning Y-STR DNA tests connecting him to the crime. The State sponsored the DNA evidence through Canela. Whittley challenges Canela's qualifications. He also disputes the reliability of the software Canela used to conduct Y-STR testing, a program called STRmix.

The Texas Rules of Evidence set out three separate conditions before expert testimony can be admitted: the witness qualifies as an expert by reason of his knowledge, skill, experience, training, or education; the subject matter of the testimony is an appropriate one for expert testimony; and admitting the expert testimony will actually assist the factfinder in deciding the case. *Rhomer v. State*, 569 S.W.3d 664, 669 (Tex. Crim. App. 2019) (quoting *Vela*, 209 S.W.3d at 131). These conditions are commonly referred to as qualification, reliability, and relevance. *Id.* “The three requirements raise distinct questions and issues, and an objection based on one of these requirements does not preserve error as to another.” *Shaw v. State*, 329 S.W.3d 645, 655 (Tex. App.—Houston [14th Dist.] 2010, pet. ref'd); accord *Procella v. State*, Nos. 05-11-01290-CR, 05-11-01291-CR, 2013 WL 222274, at *2 (Tex. App.—Dallas Jan. 17, 2013, no pet.) (not designated for publication). Whittley did not object to Canela's qualifications in the trial court. His challenge to her qualifications is, therefore, not preserved for our review. See TEX. R. APP. P. 33.1(a).

Whittley objected to Canela’s testimony only on the ground that the technology was unreliable. He reasserts that challenge here. The *Kelly* test for reliability of evidence derived from a scientific theory requires the offering party prove the following: (1) the underlying scientific theory must be valid, (2) the technique applying the theory must be valid, and (3) the technique must have been properly applied on the occasion in question. *Wells v. State*, 611 S.W.3d 396, 426 (Tex. Crim. App. 2020) (citing *Kelly v. State*, 824 S.W.2d 568, 573 (Tex. Crim. App. 1992)). To aid its determination of reliability under *Kelly*, the trial court may refer to seven nonexclusive factors: (1) the extent to which the underlying scientific theory and technique are accepted as valid by the relevant scientific community; (2) the qualifications of any expert testifying; (3) the existence of literature supporting or rejecting the underlying scientific theory and technique; (4) the potential rate of error of the technique; (5) the availability of other experts to test and to evaluate the technique; (6) the clarity with which the underlying scientific theory and technique can be explained to the court; and (7) the experience and skill of any person who applied the technique on the occasion in question. *Kelly*, 824 S.W.2d at 573. “[R]eliability depends upon whether the evidence has its basis in sound scientific methodology. This demands a certain technical showing.” *Vela*, 209 S.W.3d at 133 (quoting *Jordan v. State*, 928 S.W.2d 550, 555 (Tex. Crim. App. 1996)). That showing gives a trial judge the opportunity to weed out testimony pertaining to so-called “junk science.” *Id.* (quoting *Jordan*, 928 S.W.2d at 555). “The trial court’s

gatekeeping function under Rule 702 does not supplant cross-examination as “the traditional and appropriate means of attacking shaky but admissible evidence.”” *Wolfe*, 509 S.W.3d at 336 (quoting *Gammill v. Jack Williams Chevrolet, Inc.*, 972 S.W.2d 713, 728 (Tex. 1998)).

Canela has a bachelor’s degree in chemistry and a master’s degree in forensic science. She had worked for the Texas Department of Public Safety’s Crime Laboratory in Garland, Texas, for over six years at the time of trial. At trial, Canela provided an overview of forensic genetics and her lab’s multistep process for analyzing DNA. According to Canela, she begins a DNA analysis in a case involving sexual assault with an initial screening using chemical reagents to detect the presence of semen and male DNA. This initial screening helps to determine whether the sample is a suitable candidate for Y-STR testing, which is designed to analyze male DNA on the Y-chromosome. Criteria for suitability include the quantity of DNA as well as its level of contamination. Canela then extracts the DNA from the subject material and quantifies it.

Canela explained the next step is amplification, in which an enzymatic “polymerase chain reaction” process was used to make billions of copies of the most salient segments of DNA to facilitate their analysis while tagging the segments to allow for better identification. Canela described how, at the fourth step, she feeds the separated and amplified DNA strands into the STRmix machine. The machine then analyzes the DNA and generates an output file, which Canela uses to interpret

as a DNA profile. She next determines whether the profile is partial or full and how many people contributed to the DNA profile by evaluating whether the data coalesced around discernable “peak height” values for certain alleles, while accounting for and guarding against the effects of statistical noise and sample degradation. During this step, she also makes comparisons to any known DNA profiles submitted for analysis.

From these measurements, the analyst and the STRmix software generates a comparative statistic called a likelihood ratio, which Canela described as “a mathematical relationship from two competing [hypotheses] which explains . . . which hypothesis best describes the data.” The comparative statistic is calculated in part through reference to probabilities derived from a national genetic statistics database. She then verifies the results using her training and experience.

Canela told the jury the STRmix is used “in other laboratories across the country” and “worldwide.” She also explained the software’s reliability had been vetted through testing on two levels: through generalized, universally applicable testing by the software developers and scientists, and by individualized validation at each laboratory where the software was implemented, including the Garland crime lab where Canela worked. At the Garland lab, the validation process consisted of running DNA samples with known contributors in set ratios through the software, with mixtures ranging from one to four contributors and with different concentrations meant to mimic the real conditions under which tests would be

conducted. Testers at the Garland lab had repeatedly run these samples through all the machines in the lab to ensure they returned similar likelihood ratios and to guarantee the results were reproducible. The testers then verified the software was accurately separating the mixtures into their individual components. According to Canela, through the Garland lab's validation process, the system was tuned to account for the quirks of the other lab instruments used in processing DNA. Separate studies were run on each aspect of STRmix in a process that took "months." Canela further testified the lab had used the system reliably in the four years since it was implemented in 2017. And Canela agreed she followed all lab-required and field-approved procedures when testing the samples in this case.

Canela also offered testimony corresponding with the *Kelly* factors. She testified STRmix is considered reliable in her field, it is a generally accepted tool in her scientific community, and it will help the jury in understanding the DNA in this case. According to Canela, the scientific theory underlying STRmix is the Markov Chain Monte Carlo method, which is a widely accepted mathematical modeling technique used in many disciplines, such as code breaking, physics, social science, and computer linguistics. We conclude Canela's testimony sufficiently established the reliability of STRmix.

Moreover, DNA testing in general as well as Y-STR testing have been found reliable and to have a sound scientific foundation. *E.g. Jessop v. State*, 368 S.W.3d 653, 671 (Tex. App.—Austin 2012, no pet.) ("DNA evidence has certainly been held

admissible in Texas.”); *see also Curtis v. State*, 205 S.W.3d 656, 661 (Tex. App.—Fort Worth 2006, pet. ref’d) (upholding determination that “Y[-]STR evidence was reliable”); *People v. Zapata*, 2014 IL App (2d) 120825, ¶ 16, 8 N.E.3d 1188, 1194 (Y-STR testing reliable). The acceptance of a scientific theory by other courts is a relevant consideration in assessing a trial judge’s ruling on questions of reliability. *Wolfe*, 509 S.W.3d at 337. “When evaluating a trial judge’s gatekeeping decision, appellate courts may take judicial notice of other appellate opinions concerning a specific scientific theory or technique.” *Somers v. State*, 368 S.W.3d 528, 536–37 (Tex. Crim. App. 2012); *see Morris v. State*, 361 S.W.3d 649, 655 (Tex. Crim. App. 2011).

Regarding the STRmix software in particular, we take judicial notice of the many opinions from other jurisdictions holding the software satisfies the state and federal equivalents of Texas Rule of Evidence 702. *See United States v. Gissantaner*, 990 F.3d 457, 465–67 (6th Cir. 2021) (collecting cases and concluding STRmix satisfies federal rule of evidence 702 and is the “product of reliable principles and methods”); *see also United States v. Christensen*, No. 17-CR-20037-JES-JEH, 2019 WL 651500, at *2 (C.D. Ill. Feb. 15, 2019) (denying motion to exclude DNA results on reliability ground and concluding STRmix met reliability standards); *United States v. Russell*, No. CR-14-2563 MCA, 2018 WL 7286831, at *8 (D.N.M. Jan. 10, 2018) (holding STRmix met reliability requirements). Such decisions document various peer-reviewed studies validating the software and its low rate of error. *See*,

e.g., *Gissantaner*, 990 F.3d at 465 (“When examining ‘false inclusions,’ one peer-reviewed study concluded, based on an analysis of the DNA of 300,000 people who were known not to be in a mixture, that STRmix had accurately excluded the non-contributors 99.1% of the time,” and observing the software gave low-confidence estimates in cases of false inclusion); *United States v. Lewis*, 442 F. Supp. 3d 1122, 1128–29 (D. Min. 2020) (relying on a government study compiling data from thirty-one laboratories, which “show[s] persuasively that STRmix is capable of producing accurate results with extremely low error rates: STRmix not only works, it seems to work extremely well, at least when used in the manner it was used in these studies”); *United States v. Washington*, No. 8:19CR299, 2020 WL 3265142, at *3 (D. Neb. June 16, 2020) (relying on same government study and citing *Lewis*); *United States v. Pettway*, No. 12-CR-103S, 2016 WL 6134493, at *2 (W.D.N.Y. 2016) (overruling *Daubert* objection to STRmix based in part on testimony “STRmix and its underlying principles have been peer-reviewed in more than 90 articles”). Courts have also noted the method used by STRmix is reliable because “there are internal . . . validation checks” to ensure reliable application. *See, e.g.*, *State v. Hudson*, No. 1809009750, 2021 WL 4851971, at *5 (Del. Super. Ct. Oct. 15, 2021); *Lewis*, 442 F. Supp. 3d at 1129.

Further, STRmix software has achieved general acceptance through its use “in several federal laboratories, in more than forty states, and in at least thirteen other countries.” *Washington*, 2020 WL 3265142, at *4. “At this point, STRmix is the

market leader in probabilistic genotyping software.” *Gissantaner*, 990 F.3d at 466 (internal quotation marks omitted). “Consistent with this reality, numerous courts have admitted STRmix over challenges to its general acceptance in the relevant scientific community.” *Id.* (collecting cases). To our knowledge, only one federal court has wholly rejected STRmix on reliability grounds, but the decision was later reversed by the Sixth Circuit, which held STRmix satisfied the mandate of *Daubert*. See *United States v. Gissantaner*, 417 F. Supp. 3d 857, 885 (W.D. Mich. 2019), *rev’d*, 990 F.3d 457 (6th Cir. 2021). In short, “the STRmix method has been subjected to extensive empirical testing and found to be accurate and reliable by the FBI and numerous forensic laboratories.” *People v. Davis*, 290 Cal. Rptr. 3d 661, 680 (Cal. App. 2022). We reach the same conclusion here.

Finally, we conclude the underlying scientific theory and technique can be clearly explained to the court. Canela’s testimony was clear and direct. Further, the principles on which the software depends are well established and noncontroversial. See *Lewis*, 442 F. Supp. 3d at 1135–65 (offering an exhaustive evaluation of STRmix’s inner workings); see also *People v. Bullard-Daniel*, 42 N.Y.S.3d 714, 721 (N.Y. Co. Ct. 2016) (“[T]he mathematical models [behind STRmix] are themselves non-controversial and have been widely used in fields such as weather forecasting, computational biology, linguistics, genetics, engineering, physics, aeronautics, finance, and social sciences.”). STRmix’s creator explained these principles in a Michigan proceeding as follows:

So if I split the construction of the software into having two fundamental principles, the mathematical principles and the molecular biology principles, the mathematical principles are standard mathematical principles and they date back to the early 1900s. And they're called [Markov Chain Monte Carlo] and they're a dominant method now in mathematical procedures treating these types of problems. If we come to the molecular biology these are based on empirical studies of the variability of peak and stutter heights in different multiplexes and at different template levels and they're published in peer-reviewed articles.

People v. Muhammad, 931 N.W.2d 20, 30 (Mich. App. 2018). Indeed, as the court in *Lewis* noted, the software has few drawbacks and many strengths, including its compliance with three sets of international standards for probabilistic genotyping software. *See* 442 F. Supp. 3d at 1150–51.

Overall, the case for reliability was compelling here. Canela's testimony laid a thorough reliability predicate, explaining each step in the STRmix process, their scientific underpinnings, and the principles and protocols that kept the process in line. Through judicial notice, this predicate is reinforced by the many courts across the country that have assessed STRmix and found it trustworthy. Taking all this into account, we cannot say the trial court abused its discretion by overruling Whittle's rule 702 objection and admitting testimony concerning STRmix. We overrule Whittle's second issue.

CONCLUSION

Under this record, we conclude the evidence was sufficient to support the conviction and the trial court did not abuse its discretion by admitting Canela's

testimony. Accordingly, we overrule Whitley's appellate issues and affirm the trial court's judgment.

/Robbie Partida-Kipness/
ROBBIE PARTIDA-KIPNESS
JUSTICE

Do Not Publish.
TEX. R. APP. P. 47.2(b).
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**Court of Appeals
Fifth District of Texas at Dallas**

JUDGMENT

LAXAVIER LAMAR WHITTLEY,
Appellant

No. 05-21-00534-CR V.

THE STATE OF TEXAS, Appellee

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2020.

Opinion delivered by Justice Partida-
Kipness. Justices Pedersen, III and
Nowell participating.

Based on the Court's opinion of this date, the judgment of the trial court is
AFFIRMED.

Judgment entered this 24th day of August, 2022.